PHYSICS 1201 – INTRODUCTION TO PHYSICS I
COURSE SYLLABUS

1. COURSE DESCRIPTION

Physics 1201 – Physics for the Sciences I (3 lecture hours, 3 laboratory hours): An introductory laboratory-based course in physics covering the foundational principles of kinematics, force and motion, energy, linear momentum, rotational motion, torque, equilibrium, angular momentum, geometric optics and optical instruments. Fundamental physics concepts are introduced with examples in physical, biological, and medical processes to develop students' problem-solving skills.

Pre- or Co-requisites: Grade 12U Calculus and Vectors (MCV4U) or Mathematics 0110A/B.

Anti-requisites: Physics 1101A/B, Physics 1401A/B, Physics 1501A/B, the former Physics 1028A/B, or the former Physics 1301A/B.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to meet the necessary requisites.

2. COURSE OBJECTIVES

- Develop physics thinking skills and problem-solving approaches that are useful in other fields.
- Acquire an intuitive understanding of fundamental physics concepts with examples in linear and rotational motion, conservation of energy and momentum, and geometric optics.
- Build a foundation for success in Physics 1202 topics: fluids, waves, electricity and magnetism.
- Engage in critical analysis of a problem individually and through team effort, effectively communicating your approach to others through labs, group projects and in-class activities.

3. COURSE LEARNING OUTCOMES

By the end of the course, students will be expected to meet the specific learning outcomes specified in the beginning of each chapter. Use them as a checklist to ensure complete coverage and understanding of the required topics or skills.

Land Acknowledgement

Western University is situated on the traditional territories of the Anishinaabeg, Haudenosaunee, Lunaapeewak and Attawandaron peoples, who have longstanding relationships to the land and region of southwestern Ontario and the City of London. The local First Nation communities of this area include Chippewas of the Thames First Nation, Oneida Nation of the Thames, and Munsee Delaware Nation. In the region, there are eleven First Nation communities and a growing Indigenous urban population.

Western values the significant historical and contemporary contributions of local and regional First Nations and all of the Original peoples of Turtle Island (North America).

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4. INSTRUCTIONAL TEAM

Instructors

Eugene Wong, PhD, FCCPM
Professor, Department of Physics and Astronomy
Zoom Office Hours: see course OWL site

Dr. Najeh Zarir
Professor, Department of Physics and Astronomy
Zoom Office Hours: see course OWL site

Course Administrator

Dr. Maryam Tabeshian
Department of Physics & Astronomy

Contact Info

1. Post **technical, administrative** or **physics** questions on the relevant forums on the course OWL site.

2. For **confidential issues** that can't be posted to the OWL forums, use this tool: **https://help.sci.uwo.ca/servicedesk/customer/portal/8**.
Note: We will ***not*** respond to emails sent to our Western personal email addresses or emails from addresses other than your UWO email account **(@uwo.ca**).

Lab Instructor

Dr. Shailesh Nene, Department of Physics and Astronomy
Material Science Addition (MSA), MSA-2203

Lab contact

https://help.sci.uwo.ca/servicedesk/customer/portal/8

5. COURSE DELIVERY

Lectures 3 lecture hours per week MWF:

Section 001: 11:30 AM-12:20 PM
Section 002: 2:30 PM-3:30 PM
Section 010: 12:30 PM-1:20 PM

Labs 3 hours every two weeks, integrated with tutorials.

The Online Western Learning (OWL) system at http://owl.uwo.ca will be the home base and launching platform for all learning components. Students are responsible for checking the course OWL site on a regular basis. This is the primary method by which information will be disseminated to all students in the class outside of in-person lectures. Log in using your UWO username and password, then find the PHYSICS 1201A 001 FW21 OWL site. Key buttons or tabs to explore:

- ***Getting Started***: This starting point will provide an introduction to the course and some of the platforms being used.
- ***Announcements***: important notices and reminders will be posted here. You can set your Preferences (menu beside your name in top banner) to send an email daily or for each posting.
- ***Forums***: for getting help on Administrative and Technical issues and to post your physics-related questions.
- ***Gradebook***: Grades for all course evaluation components will be posted here. Grades from external sites (TopHat, Gradescope, Perusall) will be imported about 2-3 times during the term.
- ***Lab tabs***: For each of the labs, you'll find a checklist along with relevant content. Worksheets and lab quizzes can be accessed from here. Lab Manuals will be hosted on TopHat (see below).

TopHat platform: TopHat will be the primary source for the learning material including e-book, lesson modules, assignments, and lab manuals.

Perusall: Perusall is your e-book platform with collaborative annotation assignments where you can read and collectively discuss the course material with your peers as we progress through the course.

Laboratories: 3 hour labs approximately every two weeks integrated with tutorials.

- There are a total of 4 labs during the Fall term. The first lab (measurements & uncertainties) will be an online lab and will be evaluated as a quiz on OWL.
- Direct all lab-related questions via https://help.sci.uwo.ca/servicedesk/customer/portal/8.
- Labs are located on the second floor of the Materials Science Addition (MSA) Building. Search MSA on https://www.uwo.ca/about/visit/maps.html. For more information about the labs, see also https://physics.uwo.ca/undergraduate/current_students/first_year_laboratory.html.
- Each lab section is further divided into subsections (A, B, C and D). On the OWL "Lab Schedule", you will find your lab schedule and section assignments. You must attend your assigned subsection room.
- The complete lab manual and the lab worksheets are available for reading and downloading in your **TopHat** platform.
- **Lab worksheets:** download the lab worksheet for each lab from TopHat. These can be completed electronically, or alternatively printed, completed, and scanned (or photographed), for submission via the Gradescope link on OWL.
- **Pre-lab quiz on OWL**: for each in-person experiment lab, read the manual and complete the corresponding pre-lab quiz on OWL *before* proceeding to the lab session. You need a quiz score of ≥75% but have unlimited attempts. Failure to meet this requirement will lead to zero on the lab, irrespective of your mark you receive for the lab worksheet.
- The first **Measurements & Uncertainties Lab (Lab 01)** is an exception – after reading the lab and working through the exercises, complete the online OWL quiz; no worksheets need to be submitted. You need a quiz score of ≥75% to pass. You have **3** attempts for completing the quiz with no time limit.

Drop-in Help Centre: Help on course material will be available on various days as per the schedule posted on OWL when it becomes available. We will strive to find a selection of times to enable access for everyone. The teaching assistants (TAs) in the Help Centre are Physics and Astronomy graduate students or volunteer undergraduate students specializing in Physics (organized by the Physics & Astronomy Student Association, PASA). The drop-in location is in the new Math Hub in the basement of the Physics and Astronomy Building (PAB).

Contingency plan for an in-person class pivoting to 100% online learning*:* In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

6. COURSE MATERIAL

Visit The Book Store at Western (UCC Lower Level or online at https://bookstore.uwo.ca). To find your course material, enter Physics 1201 in the online search tool. Purchase the course e-code bundle for Physics 1201. The full-price version provides lifetime access to the course content; Physics 1202 in the second/winter term will use the same platforms and will not require a separate purchase. There is a six-month option if you only plan to take one term of physics only.

The course package will provide access to the textbook and learning platforms:

e-book ***Physics for Scientists and Engineers (2nd Ed)****,* by Hawkes et al. The text is a resource for assigned readings and homework problems (see Course Schedule). Your purchase will include digital access to the book in two locations: Perusall, for collaborative reading and discussion, and TopHat, for additional resources for each chapter and problem-solving assignments.

TopHat Access to TopHat is ***required*** for completing the online assignments. See the '*TopHat Instructions'* document on OWL under the *Getting Started* tab.

Perusall Access to Perusall is required for completing readings and discussion assignments.

Lab Manual ***Physics Laboratory Manual 2021-2022 for Physics 1201*** *(required).* The lab manual is included in your package and accessible through the TopHat platform.

Follow the instructions from your bookstore receipt to redeem the bookstore code; this will generate your two access codes for TopHat and Perusall. To access your digital materials, you will need to follow the corresponding TopHat and Perusall links in the course OWL site and then enter the appropriate access codes when prompted.

- **TopHat:** On OWL, follow the TopHat button. You will need to register using your Western email address, the course ID (**011676**), and your purchased access code. Follow the steps carefully in the PDF posted under *Getting Started* on OWL, ensuring that you redeem the bookstore receipt code to obtain the actual TopHat access code. Failure to use your Western email address will result in no grades given to your assignments. If you have issues accessing TopHat, contact Support on the TopHat site or visit the related thread on the OWL forum.
- **Perusall:** On OWL, select the Perusall button. Then in *Perusall*, the first time you click on the ***Physics for Scientists and Engineers*** book in the Perusall Library or on a reading assignment from the e-book in Perusall, you will be prompted to purchase access to the book. Click "*Enter an access code*" in the top bar, and then enter the access code you received after redeeming the bookstore code. If you have issues, refer to the OWL forum on 'Technical issues' or use the "? Help" button in the top banner in Perusall. *Do not purchase the e-book directly through Perusall, as we have negotiated a bundled discount and you need the other items in the bookstore bundle.*

7. COURSE EVALUATION

The overall course grade will be calculated as follows:

Reading & Discussion Posts	6%	• Best 4 of 5 counted; completed on Perusall.
Assignments	8%	• Best 4 of 5; completed on TopHat.
Group Projects	7%	• 2 total (3%+3%) + 1 setup (1%)
Labs	10%	• 4 total; see below for further details.
Quizzes	8%	• Best 2 of 3; completed on OWL; see below.
Midterm Test	23%	• In-person: Saturday October 23, 10:00 AM-1:00 PM
Final Examination	38%	• In-person: To be scheduled by the Registrar's Office.

See the document ***Physics 1201 Course Schedule*** for details of timelines and deadlines.

Reading & Discussion assignments on Perusall: Assignments involve collaborative readings of the course e-book (or other posted text/video content) in Perusall, followed by posting comments and/or responses to stimulate discussion. Follow the Perusall link in OWL, and then find Assignments in the left sidebar in Perusall. One of the first assignments is on '*How Perusall Works*'.

Assignments on TopHat: 5 assignments are to be completed to help you gain deeper understanding of physics concepts and problem-solving. Your best 4 of 5 scores will be counted.

Group Assignments: Students are required to participate in the group assignments. There is one setup (1%) assignment – failure to complete this assignment will automatically forfeit the entire group assignment grades. More details to come.

Labs: This course is listed as a lab-component course, and thus *to pass the course, a student **must** obtain a passing grade for the laboratory component.*

- Students are required to complete **all 3 experiment labs plus the online Measurements Lab (quiz)**. The final lab mark will be the average of the 4 marks. An incomplete lab will be recorded as a zero and included in your lab average score.
- Missed lab must be accompanied by an appropriate documentation (see Academic Considerations below). It is your responsibility to follow up with the lab instructor to discuss alternative arrangements for any missed lab.

***Quizzes*:** Your understanding of the course content will be assessed over the term through 3 quizzes. The quizzes are timed assessments on OWL to provide practice problem solving under a time constraint as will be applicable for the midterm test and final exam.

- Quizzes will be online and available for a 10-hour window. You will have 90 minutes to complete a quiz that is designed for less than 1 hour. *Do not open the quiz until you are ready to take the full quiz – time starts when you first open the quiz*.
- You are expected to work independently on the quiz. Communicating contents of the quizzes to others in any fashion (verbally, via social media, email, printouts, or any other means) or working collaboratively is considered cheating; see 10.B below regarding cheating.
- Remote proctoring software may be used to monitor quiz taking.
- Quizzes will be on Friday: Quiz 1: Oct 1st; Quiz 2: Nov 12; Quiz 3: Nov 26.

Midterm test: The midterm test will be in-person on Saturday Oct. 23, 10:00 a.m. to 1:00 p.m. (EST). A formula sheet will be provided during the exam and will be available on OWL for preview in advance. A calculator will be allowed.

Final examination: The final exam will be in-person. The date and time will be determined and announced by the Office of the Registrar in November. A formula sheet will be provided and available for preview in advance. A calculator will be allowed.

Grades: *Scores* will be transferred to the Gradebook on OWL over the term. Any errors, or appeals to your scores, must be reported via https://help.sci.uwo.ca/servicedesk/customer/portal/8 *within two weeks* of their initial posting. *Please note*: *a*) your *final exam* mark will only be posted to OWL after the end of the exam period, *b*) your *final course grade* must come officially from the Registrar's Office and will not be posted on OWL, and *c*) in rare cases, *final course grades* may be adjusted in order to conform to the Physics & Astronomy department policy.

8. ACADEMIC CONSIDERATIONS

Academic Consideration for Student Absences — Students who experience an **extenuating** circumstance (illness, injury, or other extenuating circumstance) **sufficiently significant** to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

(i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
- an absence must be no more than 48 hours in length
- the assessments must be worth no more than 30% of the student's course grade
- students are not allowed to use SRA for the final exam (or the make-up final) – see Section 10g below for more information
- no more than two SRAs may be submitted during the full academic year.

(ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.

(iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered. For this course, you will contact https://help.sci.uwo.ca/servicedesk/customer/portal/8 and ***not*** the instructors directly. Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. *All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a* ***student's Home Faculty****.*

Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation and visit the Faculty of Science website on Academic Consideration.

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:
www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf
and for the Student Medical Certificate (SMC), see:
www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Religious Accommodation – Students should consult the University's list of recognized religious holidays and give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar.

9. ACCOMMODATION AND ACCESSIBILITY

Students with disabilities should work with Western's Accessible Education (formerly Services for Students with Disabilities - SSD), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf

10. ACADEMIC POLICIES

Please refer to the UWO Academic Policies http://www.uwo.ca/univsec/academic_policies/ for further details on the policies in practice here. The website for Registrarial Services is www.registrar.uwo.ca.

In accordance with policy, www.uwo.ca/its/identity/activatenonstudent.html, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

A. Make-up Policy

a) ***Reading assignments*** – Best 4 of 5 scores are counted, which allows you to miss 1 reading assignment without penalty. No make-up will be available.
b) ***Assignments*** – 5 assignments will be available online over the course term; the best 4 of 5 are counted, thus your lowest mark will be dropped, which allows you to miss 1 assignment without penalty. No make-up assignments will be given.
c) ***Labs*** – No make-up labs are offered; however, one lab may be missed with appropriate documentation (see Academic Considerations). In all other cases, an incomplete lab will be recorded as a zero and included in your lab average score.
d) ***Group assignments*** – No make-up group assignment can be offered. Missed group assignment must be accompanied with appropriate documentation (see Academic Considerations). If you missed the initial setup assignment (1%), you will forfeit the entire group assignment grade.
e) ***Quizzes*** – 3 quizzes are scheduled over the course term; the best 2 of 3 are counted, thus your lowest mark will be dropped, which allows you to miss 1 quiz without penalty. No make-up quiz will be provided.
f) ***Midterm test*** – A make-up midterm test will be offered Thursday, October 27, 7:00 PM – 10:00 PM only for those with approved Academic Consideration. If the make-up test is also missed due to an approved absence, the grade component will be reweighted to the Final Exam.
g) ***Final Examination*** – In accordance with Senate Policy, a Special Examination will be held within thirty days of the regular final examination for students who were unable to write the regular examination for medical or other documented reasons. Requests for such a Special Examination must be made to the Associate Dean, Faculty of Science via an Academic Counsellor. Note that if you fail to write the scheduled Special Examination, permission to write another Special Examination will be granted only with the permission of the Dean in exceptional circumstances and with appropriate supporting documents. In such a case, the date of this Special Examination normally will be the scheduled date for the final exam the next time the course is offered (e.g., the following December for this course).

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately (https://help.sci.uwo.ca/servicedesk/customer/portal/8)**.** It is the student's responsibility to make alternative arrangements with their instructor once academic consideration has been approved and the instructor has been informed. In the event of a missed final exam, a "*Recommendation of Special Examination*" form must be obtained from the Dean's Office immediately. For further information, see http://www.uwo.ca/sci/undergrad/academic_counselling/.

B. Cheating and Plagiarism

"Success (and failure) will come and go, but integrity is forever" - Amy Rees Anderson

What is Academic Integrity? Please review this site (from the Centre for Teaching and Learning) and course OWL tab on **Academic Integrity** – your learning should matter to you!

University Policy states that cheating, including plagiarism, is a major scholastic offence. Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following: www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

The commission of a scholastic offence is attended by academic penalties that might include expulsion from the program. If you are caught cheating, there will be no second warning.

As per the UWO Academic Policies:

- Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing, such as footnotes or citations.
- All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).
- Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

C. Online Course Conduct & Netiquette:

Note that disruptive behaviour of any type during classes or online components, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a session or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

Only students using their UWO credentials will be permitted to access the course elements. If, for privacy reasons, you wish to use a pseudonym, you must have the pseudonym pre-approved by the course coordinator before being allowed to participate in any online component.

If you are experiencing any online harassment or bullying through the course platforms, report the behaviour immediately to your instructor. Perusall has a built-in option (look for the exclamation icon) to flag inappropriate comments or plagiarized content with automatic notification sent to the instructor. Anyone posting inappropriate content or abusing the option to flag inappropriate content will be banned from further interactions, which eliminates any further grades or marks related to the collaborative platforms.

General considerations of "netiquette":

- Use your computer and/or laptop if possible (as opposed to a cell phone or tablet).
- Keep in mind the different cultural and linguistic backgrounds of the students in the course.

- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Use proper grammar and spelling. Cite the ideas of others appropriately.

D. Remote Proctoring Software In the event of a health-related lock-down, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring site: remoteproctoring.uwo.ca/.

E. Complaints and Suggestions: If you have a concern about something, please let us know. Please contact your instructor via https://help.sci.uwo.ca/servicedesk/customer/portal/8. You may also reach out to the Physics & Astronomy Department Chair or the Associate Chair of Undergraduate Affairs (for contact information see http://www.physics.uwo.ca).

11. SUPPORT SERVICES

Accessibility — Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: www.uwo.ca/se/digital/.

Counseling — Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/

Learning Skills — Learning-skills counsellors at the Student Development Centre (www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Mental Health — Students who are in emotional/mental distress should refer to Mental Health @Western (www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help.

Science Student Donation Fund — This course gratefully acknowledges support from the Science Student Donation Fund. If you are a B.Sc. or B.M.Sc. student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you contribute to the Science Student Donation Fund, which is administered by the Science Students’ Council (SSC). One or more grants from the Fund have allowed for the purchase of lab equipment integral to teaching this course. However, you may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science’s Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the chair of the department or email the Science Students’ Council at ssc@uwo.ca. In the front pages of your lab manual, you will find examples of some the lab equipment partially funded through the Science Student Donation Fund.

Student Council — Additional student-run support services are offered by the USC, westernusc.ca/your-services/#studentservices.